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IND. STA 8456631

e, Death,

and Rebirth of a Tree



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United States
Department of
Agriculture

PREPARED BY
Forest
Service

Northeastern
Station
NE-INF-52-83

Life, Death, and Rebirth of a Tree

1. Trees have survived on the earth for more than 200 million years. The life, death and rebirth of trees continues despite flood and fire, drought and disease. Even people have not managed to destroy the cycle.....yet.
2. People may have contributed to the stress on trees, but by learning more about their life, death and regeneration, we can also help to lessen it. A tree is first of all a system of great beauty, adaptability and strength.
3. Life begins for a tree when a male and a female cell meet. These cells may occur together in a single flower,
4. or in a cluster of many small flowers, such as this dogwood blossom.
5. Flowers vary widely in their structure and appearance. This eucalypt blossom has an array of showy male parts but no petals.
6. On many trees, male and female parts grow separately. These are catkin, the male flowers of an oak. In some species, female flowers grow on one tree and male flowers on another.
7. Evergreens have flowers, too. Cones grow from fertilized female cells. When ripe, cones open and scatter their seeds on the forest floor, where a new tree takes root.
8. Some cones don't drop their seeds until they burst with the heat of fire.
9. An acorn....
10. becomes an oak, drawing energy from the seed for its first spurt of growth.
11. Young trees face many threats to survival, including constant wounding,
12. even during the sensitive growth period when next year's buds form.
13. In the spring, buds open on hardwoods...
14. and softwoods, releasing the new life enclosed within.

15. Nature's young mantle envelopes the older tree.
16. These birch buds are bursting with the stored energy...
17. to form new leaves. Leaves in turn manufacture energy in the form of sugar, produced during the interaction of carbon-dioxide, water and sunlight.
18. Leaves compete for a place in the sun.
19. When their work is done, they fall,
20. decompose and become part of the soil.
21. Leaves and needles are not the only parts shed by trees. Bit by bit, it sloughs off the outer bark....
22. and when branches die,
23. they, too, fall away.
24. A tree's life extends beneath the ground. Here, larger roots provide a support system,
25. while finer filaments absorb moisture and minerals.
26. Though they shed many outer parts, trees retain their wood, both healthy and decayed, in a highly ordered fashion. Viewed through a microscope, this stained section of woody tissue reveals the order...
27. that assures survival.
28. This is a magnified section of American elm.
29. These microscopic units in woody tissue can be likened to rooms or compartments, which a tree can close off if they become injured or infected.
30. New wood that forms around the wound is usually not infected. A callus covers the injured surface.
31. Throughout the ages, many trees have been wounded by fire, both natural and man-caused.

32. Fire wounds can be fatal.
33. Heavy equipment is a more contemporary cause of wounding.
34. Giant redwoods are no more immune to injury....
35. than the most assaulted city tree.
36. Many problems can be traced to wounds. The split seam in this piece of oak is called a frost crack, but the trouble actually began with an injury that occurred when the tree was one inch in diameter. As callus formed around the wound, a seam developed and later split. The tree may have been injured by a lawnmower or some type of equipment. If people knew the consequences of their actions,
37. they might see that damage to trees is a dead end.
38. Striped of large sections of bark, a tree dies. Fungi soon invade.
39. Most people think that dressings will help heal a wound, but research shows that wound dressings do not stop decay.
40. The gum secreted by this peach tree is a natural dressing. All trees have similar self-healing mechanisms.
41. Collecting maple syrup is a yearly ritual. Several taps a year will not harm the tree, but too many will strain its recuperative powers and cause internal injury. Injections can be damaging, too. Only highly skilled, trained professionals should give injections.
42. The same advice goes for inserting hardware to strengthen branches and trunks,
43. and for filling cavities. A professional will not bore holes to drain water from a cavity, or clean the decayed area so thoroughly that healthy wood is injured.

44. Trees produce a wall around injured and infected wood. You should never disturb this natural barrier. Injuries form an indelible record of a tree's life: a hollow will be equal in diameter to the diameter of the tree when it was injured.
45. Trees are highly organized, compartmented systems. They survive by external shedding and internal walling off.
46. They depend on leaves for food to stimulate growth. Pollutants may contaminate this food supply, so extra effort should be made to keep trees pollution-free.
47. Incorrect pruning is one of the most damaging practices inflicted on forest trees, shade trees,
48. and fruit trees.
49. Never prune where this saw is poised, behind the bark ridge. Cut in front of the ridge, as indicated by the red line. Never prune when the leaves are forming. As mentioned earlier, don't paint wounds except for cosmetic reasons; then, use a thin coat of a commercial dressing, never a house paint.
50. Trees help support many other living organisms, including these lichens. Far from harming the tree, lichens indicate pollution-free air.
51. Many forms of life could live on and in this Tasmanian tree, believed to be the largest hardwood in the world.
52. Like all living things, trees eventually die and decay, victims of many living and man-made agents. The agent here is Dutch elm disease. To ward off this widespread infection, keep elm trees well pruned. If they do become infected, cut and destroy the diseased trees as soon as possible.
53. This is shoestring root rot. Named for the black bands that the fungus produces under dead bark, shoestring root rot often attacks weakened trees. Keep your trees healthy and vigorous through a well designed program of tree care.

54. Dwarf mistletoe is a major problem in the West. A parasitic plant, it drains energy from the tree. To reduce its impact, prune infected areas from young trees.
55. Insects leave nothing untouched — they devour leaves, suck juices, and bore into wood. Before using insecticides consult a professional. If you do it yourself, read the label carefully.
56. Some major types of injury, including the damage caused by construction, can be avoided. Insist that your contractor follow careful construction practices. Using heavy soil fill, damaging the roots,
57. or changing the grade and moisture content of sites can cause major problems for trees. Consider the consequences before the work begins.
58. Road salt and other chemicals will damage trees, especially wounded ones.
59. Drought takes its toll, too. You can help by watering trees during dry spells, especially when the buds are ready to leaf.
60. Why trees die is not always known or understood. We need to explore further the many aspects of a tree's life and death.
61. Wood products are sometimes invaded by fungi, though these organisms are different from those that attack living trees. Keep wood products dry and protect them with preservatives to discourage fungi.
62. Researchers are exploring the basic life processes of a tree. Here, they record and study the pattern of electrical signals passed through a stem.
63. They also use devices like this electric meter, which measures a tree's vitality and detects decay.
64. More detailed information on the function and care of trees can be found in publications available from the Government Printing Office,

65. or on posters and in other slide-tape presentations obtainable through Forest Service representatives.
66. The many benefits that we gain from trees...
67. are enjoyed by animals, too. Trees provide homesites...
68. and food for many species.
69. Even cut trees supply food, in the form of yeast-infected sap, for both large and small animals.
70. The shed parts of trees — needles, leaves, bark, twigs and branches — make ideal shelters for small animals.
71. The cycle of life...
72. and eventual death will continue forever, or as long as trees survive.
73. When one form of life passes on, another takes its place.
74. The tree decomposes,
75. and returns to the soil and air,
76. where it helps nourish other plants,
77. and eventually enters the life stream of a new tree.
78. Again, the young plants grow, capture energy from the sun,
79. and multiply into a new forest. Again, we enjoy the beauty and utility of trees.
80. The life, death and rebirth of trees is a story 200 million years old. It started long before we were here and may outlast us yet. But while we can, why not care for and use trees wisely? So much depends on us.

This program has been presented by the Forest Service, United States Department of Agriculture.

